

APPENDIX D:

EFFLUENT MANAGEMENT, TESTING, APPLICATION, AND RESPONSE ACTIONS

Except where specifically indicated, the requirements of this Appendix D apply to land application areas ("LAAs"), both center pivot and hard hose, at all Appendix A Farms. The following requirements will terminate four years after entry of this Consent Decree unless another time period is expressly provided herein.

3.0 GRAZING

Seaboard shall not allow grazing to be performed on the land application areas.

3.1 APPLICATION TESTING OF LAND APPLICATION AREA (LAA) SURFACE SOIL

Defendant shall commence application testing, as required in 3.1.1 and 3.1.2, no later than 30 days after entry of this Decree. Defendant shall perform the pre-application testing of LAAs set forth in 3.1.1 and 3.1.2 before each and every land application event on a LAA for four years after entry of this Decree. Application testing will address total nitrogen and moisture levels in soils prior to each land application event. Results from each such test will be made available to EPA upon request.

3.1.1 NITROGEN MONITORING

Seaboard shall conduct all total nitrogen testing and monitoring in accordance with the following criteria:

- a.) Pre-application sampling and data evaluation shall follow applicable Oklahoma State University (OSU) Extension Service Guidelines. Applied nitrogen must not exceed crop needs.
- b.) Prior to application, soil samples will be collected at 0 to 6 inches and below the root zone and, if the sample in the top 6" does not extend below the root zone of the crop planted, soil samples will be collected from 6 to 24 inches below the surface. Twenty discrete pre-application samples, per depth interval, will be collected per pivot or hard hose area at locations representative of various soil types present in a "Z" pattern covering the entire LAA. Discrete samples will be composited into one sample per pivot or hard hose area and analyzed for total nitrogen.
- c.) Pre-application analysis of lagoon effluent for Total Kjeldahl Nitrogen (TKN) will be performed.
- d.) Plant Available Nitrogen (PAN) is to be calculated as $0.5 \times \text{TKN}$.

3.1.2 MOISTURE MONITORING - METHOD TO BE APPLIED IN EACH INSTANCE SOIL MOISTURE IS MONITORED

- a.) Seaboard shall measure soil moisture at 6 inches and also below the root zone if the measurement in the top 6 inches does not extend below the root zone of the crop planted.
- b.) Seaboard shall test a minimum of 4 locations per hard hose or pivot area.

- c.) Seaboard shall not apply effluent when pre-application soil moisture plus effluent moisture would exceed field capacity. "Field capacity" is the maximum amount of water that a soil can retain after excess water from saturated conditions has been drained by the force of gravity.
- d.) Seaboard may opt to use wetting front test equipment in lieu of moisture probes to determine soil moisture for application areas where this equipment is present.

3.2 WETTING FRONT TESTING

- a.) The purpose of the required wetting front testing is to evaluate whether effluent application results in effluent wetting front movement through soils to below the root zone. Defendants shall perform this testing at the pivot area at Lacey 3 Watson and at the pivot and hard hose areas at Fairview Nursery Complex.
- b.) Defendant shall order wetting front testing equipment described herein within 30 days of the entry of this Decree, and shall install such equipment within 60 days of receipt of that equipment. The approximate one-year wetting front testing period described herein shall commence at the installation of the wetting front equipment.

3.2.1 TESTING REQUIREMENTS

- a.) The anticipated test duration will be approximately one year. For each Farm, if area precipitation is less than 75 percent or greater than 125 percent of average for the test period, EPA may require Defendants to perform an additional 4 test events in compliance with this subsection. The source for precipitation data will be the Oklahoma Mesonet station nearest to each farm.
- b.) Defendants shall perform four test events, each separated by at least four weeks, during an approximately one-year period. This schedule may be modified as required due to weather conditions.
- c.) Each test event shall begin 12 hours before application and end 7 days after application is completed. If greater than 0.4 inches of rainfall occur on-site within 72 hours of the completion of application, data acquisition will be terminated, the test will be considered a rainout, and will be repeated. If greater than 0.4 inches of rainfall occur on site during the test event, but more than 72 hours after the completion of application, data acquisition will be terminated by Defendants, and the test will not be repeated. Defendants will provide data from terminated tests to EPA.
- d.) Defendants shall place measurement probe clusters in the application areas to obtain data. At least one week prior to such placement, Defendants shall notify EPA in writing of its intended schedule for the probes' placement. Defendants shall place a total of four probe clusters in each of the center pivot areas at the Lacey 3 Watson and Fairview Nursery Complex farms, and two probe clusters in the hard hose area at the Fairview Nursery Complex.
- e.) Each probe cluster shall consist of multiple probes placed at approximate 5" intervals from 5" to approximately 35" below ground level. Probes will transmit soil moisture data to a data logger. The probes and datalogger shall be those manufactured by GrowSmart or be an alternative approved by EPA.

- f.) Defendants shall notify EPA in writing one week in advance of each test event. If a test is rescheduled due to weather or other conditions, Defendants shall notify EPA orally of the new schedule for testing as soon as practical.
- g.) If Defendants identify the presence of a wetting front during the 4th test event, Defendants shall perform a 5th test event following the above criteria. This test event will be performed to evaluate the effectiveness of land application practice changes implemented in response to the 4th event findings. Regardless of the 5th event findings, however, wetting front testing need not continue.

3.2.2 REQUIREMENT FOR RESPONSE ACTIONS

If moisture movement exceeds the shallower of either:

- a.) the reach of the planned adult crop root zone, or
- b.) 35 inches below ground level,

then Defendants shall notify the EPA RCRA Project Manager within 30 days of receipt of data, pursuant to Section XIII (Notices and Submittals) of this Consent Decree, and immediately implement the appropriate Response Action(s) pursuant to Section 3.4 of this Appendix to rectify the measured exceedance.

3.2.3 REPORTING REQUIREMENTS

Defendants shall report to EPA the full results of all testing required herein within 30 days of the conclusion of each test.

3.3 ANNUAL EFFLUENT APPLICATION AND MANAGEMENT REPORT

3.3.1 LAND APPLICATION RECORDS REPORTING:

No later than January 31 after entry of this Consent Decree, and annually for three years thereafter, Seaboard shall submit to the EPA Project Manager land application records kept in the ordinary course of business regarding land application events that occur on fields included in the ODAFF permits issued to each of the farms listed in Appendix A, excluding the Choate Farm. The records shall include, at a minimum, the following information for each land application event that occurred in the relevant year:

- a.) The name and number of the farm from which effluent was applied.
- b.) The legal description of the field and the number of acres on which land application occurred.
- c.) The type of crop on which effluent was applied and the yield goal for which the agronomic rate was calculated.
- d.) The method used to apply waste at each application site (e.g., center pivot, honey wagon, flood, manure spreader, hard hose, etc.).
- e.) All records of any solid waste and/or effluent analysis taken prior to land application at each application site.

- f.) All records of soil analysis, including any total nitrogen tests and soil moisture tests.
- g.) Information as to whether effluent was blended with fresh water prior to land application and if so, the ratio of fresh water to effluent.
- h.) The quantity of solid waste and/or effluent that was applied to each field, and for what time frame (i.e., start time and date, stop time and date, and volume applied).
- i.) Rainfall records for the period during which application occurred.

3.3.2 SUPPLEMENTAL ANNUAL LAND APPLICATION REPORTING REQUIREMENTS

In addition to the routine records provided pursuant to 3.3.1 above, no later than January 31 after entry of this Consent Decree, and annually for three years thereafter, Seaboard shall submit the following information to the EPA Project Manager for each application site at each field and/or farm described in 3.3.1 above:

- a.) For each application site on which commercial fertilizer was applied as well as solid waste and/or effluent: the type of fertilizer used, and where, when and how much fertilizer was applied; and
- b.) For each application site, all information available to Seaboard (directly or from lease farmers) regarding the actual yield for each crop.

3.3.3 ONE-TIME LAND APPLICATION REPORTING REQUIREMENT

Within 30 days of entry of this Decree, Seaboard shall provide the following information to the EPA Project Manager regarding each of the farms listed in Appendix A (except Choate):

- a.) The maximum permitted capacity of each farm;
- b.) Information as to whether each farm has a recycle system or uses fresh water to recharge the pits; and
- c.) The average amount of fresh water used at each farm annually, based on data from the most recent three years.

3.4 RESPONSE ACTIONS

If EPA or Defendants determine that (a) the results from a pre-application test indicate applied nitrogen exceeds crop needs (see (a) below), (b) the results from a moisture test indicate pre-application moisture plus effluent moisture would exceed field capacity (see (b) below), or (c) the results from a wetting front test indicates that effluent application has caused the effluent wetting front to move through the soil below the root zone (see (c) below), Defendants shall immediately implement one or more of the following response actions, as applicable:

- a.) Excess Nitrogen:
 - 1.) Change the crop;
 - 2.) Apply excess nitrogen on an alternative site that has been demonstrated to be capable of safely receiving such nitrogen;

- 3.) Modify farm's waste management technology, such as use of evaporative or nitrification/denitrification system (notify EPA Project Manager prior to implementation); or
 - 4.) Other solution (notify EPA Project Manager prior to implementation).
- b.) Excess Moisture:
- 1.) Allow excess soil moisture to attenuate naturally before application; or
 - 2.) Other solution (notify EPA Project Manager prior to implementation).
- c.) Wetting Front has Moved Below Root Zone:
- 1.) Modify application rates or application procedures, perform one additional wetting front test (total number of tests not to exceed 5 as specified in 3.2.1(g)) to demonstrate efficacy of modification, and report results to EPA;
 - 2.) Re-evaluate measurement of field moisture or calculation of field capacity, perform one additional wetting front test (total number of tests not to exceed 5 as specified in 3.2.1(g)) to demonstrate efficacy, and report results to EPA; or
 - 3.) Other solution (consult with EPA Project Manager prior to implementation).

3.5 FAIRVIEW NURSERY COMPLEX RESPONSE

On April 20, 2006, Seaboard and the State of Oklahoma entered into a "Settlement Agreement" and in Paragraph 48 thereof, the parties provided a mechanism for addressing potential groundwater contamination at the Fairview Nursery Complex. Pursuant to that provision, if, before April 20, 2010, the Oklahoma Department of Agriculture, Food and Forestry ("ODAFF") obtains information that demonstrates a decline in groundwater quality downgradient of the dedicated land application areas associated with the Fairview Nursery Complex that ODAFF concludes is attributable to Seaboard's application of treated effluent on that property, and if Seaboard agrees with ODAFF's conclusion, Seaboard will develop a responsive action plan that may include further investigation, land application modification(s), or other response actions.

3.5.1. GROUND WATER DATA

For six years after entry of this Consent Decree, EPA will provide to Seaboard and ODAFF, and Seaboard will likewise provide to EPA, all groundwater monitoring or sampling data obtained by EPA or by Seaboard, respectively, from wells in the vicinity of the Fairview Nursery Complex. Each party will provide such data within 30 days of the receipt of preliminary laboratory reports, or within 30 days of obtaining data from another source, unless such data are otherwise required to be provided pursuant to this Consent Decree.

3.5.2 WATER TREATMENT SYSTEMS

- a) For the first six years after entry of this Consent Decree, if EPA concludes that groundwater downgradient of the dedicated land application areas at the Fairview Nursery Complex and north of the North Canadian River:
 - (i) contains nitrate-nitrogen at levels in excess of the performance standard set forth in Section 1.1 of Appendix B; and

(ii) is likely to be drawn by one or more wells that supply drinking water to individuals,

Defendants shall, within 72 hours of receiving a written request from EPA, provide alternative water supplies to specified well users and, within 60 days of a written request from EPA, install and maintain a whole-house, reverse osmosis water treatment system at any residence, dwelling, or other structure downgradient of the Fairview Nursery Complex facility and north of the North Canadian River that utilizes water supplied by the wells referred to in 3.5.2(a)(ii) above.

- b) Defendants shall fully maintain any water treatment systems required under Paragraph 3.5.2(a) until (i) EPA finds that the groundwater downgradient of the Fairview Nursery Complex and north of the North Canadian River no longer exceeds the performance standard set forth in Section 1.1 of Appendix B or (ii) the designated residence, dwelling, or other structure is no longer occupied or in use, whichever is earlier.
- c) If, however, Defendants conclude that the elevated nitrate-nitrogen at the supply well location is not substantially derived from Defendant's activities at the Fairview Nursery Complex, Defendants may submit evidence of this conclusion to EPA together with a request to discontinue provision of the water treatment systems required by Paragraphs 3.5.2(a) and (b). Upon receipt of Defendants' request, EPA shall, within 60 days, either approve the request, reject the request with comments, or request additional information. If EPA approves Defendants' request, Defendants may notify water treatment recipient(s) and discontinue provision of water treatment systems upon receipt of such approval. If EPA does not approve Defendants' request, Defendants shall, within 30 days of receiving EPA's response, either (i) revise the submittal consistent with EPA's comments or request for additional information, or (ii) submit the matter for Formal Dispute Resolution under Section IX of this Consent Decree. Defendants shall continue to provide required water treatment systems as required until EPA approves a request to discontinue such provision, or until the Court rules that Defendants may discontinue such activities following the Dispute Resolution process.

3.5.3 FAIRVIEW RESPONSE PLAN

- a) If, at any time more than two (2) years but less than six (6) years after entry of this Consent Decree, EPA finds (referred to in this Section 3.5 as "EPA's Finding") that the nitrate-nitrogen level in the groundwater downgradient of the dedicated land application areas associated with the Fairview Nursery Complex and north of the North Canadian River:
 - (i) exceeds the performance standard set forth in Section 1.1 of Appendix B;
 - (ii) is attributable to Defendants' activities at the Fairview Nursery Complex; and
 - (iii) is unlikely to be remediated – by actions being undertaken by Seaboard at the time of EPA's Finding – to the level set forth in the Performance Standard set forth in Section 1.1 of Appendix B within 15 years from the date of EPA's Finding,then EPA, after consulting with ODAFF, may: notify Seaboard and ODAFF of EPA's Finding; provide all data it has obtained related to groundwater at, or groundwater downgradient of, these areas; and request that Seaboard prepare and perform a Fairview Response Plan ("FRP") as provided in Paragraph 3.5.3(d), below.

- b) If Seaboard does not contest EPA's Finding, Seaboard shall comply with Paragraph 3.5.3(d) below.
- c) If Seaboard elects to contest EPA's Finding, it shall so notify EPA and ODAFF within thirty (30) days of receipt of EPA's notification, and submit documentation in support of its position. After consulting with ODAFF, EPA may either concur in Seaboard's conclusion or reject Seaboard's conclusion and provide written comments. If EPA rejects Seaboard's conclusion, then within thirty (30) days of receiving EPA's written comments, Seaboard shall either:

- (i) submit and implement an FRP as provided in Paragraph 3.5.3(d) below; or

- (ii) submit the matter for Formal Dispute Resolution under Section IX of this Consent Decree.

Seaboard's election under this Paragraph to contest EPA's Finding, and its pursuit of the options provided in this Paragraph, shall not be deemed to be a violation of this Consent Decree, regardless of the outcome of these procedures.

- d) Within sixty (60) days of an uncontested request by EPA to submit an FRP, or within 60 days of the conclusion of any Dispute Resolution process resulting in the requirement to submit an FRP, Seaboard shall:

- (i) submit an FRP to EPA and ODAFF that:

- (1) is prepared in consultation with EPA and ODAFF;

- (2) may include, but is not limited to, further investigation, land application modifications, groundwater sampling, monitoring, or remediation, or other appropriate response actions;

- (3) requires Seaboard to achieve the performance standard in Section 1.1 of Appendix B to this Consent Decree; and

- (4) is fully consistent with all other terms, conditions, and requirements of Appendix B, except that:

- (A) the "Start Date" described in Section 1.3.1.2 shall be a date proposed by Seaboard and approved by EPA; and

- (B) the requirements set forth in Section 1.2 may be omitted, provided that, in the event existing wells become unavailable, Seaboard shall install sufficient additional MNA wells to monitor the plume, upon EPA's request.

and:

- (ii) upon approval of such FRP by EPA, implement the FRP in accordance with the approved schedule therein.

3.6 EARLY COMPLIANCE

- a) To the extent Defendants have commenced implementation of the actions specified in Sections 3.1 or 3.3 at any time after January 1, 2006, but prior to entry

of this Decree, and in full compliance with the requirements stated therein, Defendants may request credit for such period of early compliance against the four-year term of Section 3.1 or the three-year term of Section 3.3. To obtain such credit, Defendants must submit a report for EPA's approval no later than 90 days after entry of this Decree or in their first Annual Report submitted pursuant to this Section, whichever is later, explaining what early compliance actions were taken, proposing a new end-date for the relevant requirement (if applicable), and certifying, in compliance with Section XIII (Notices and Submittals) of this Consent Decree, that all such actions were taken in compliance with all the requirements of this Consent Decree. After review of this submittal, if EPA determines that the actions taken comply with the requirements of this Consent Decree, EPA shall so notify Defendants within 180 days of receipt of Defendants report and specify the new end-date that reflects the period of early compliance for the relevant requirement (if applicable).

- b) To the extent Defendants have commenced implementation of the actions specified in Sections 3.2 at any time after January 1, 2006, but prior to entry of this Consent Decree, and in full compliance with the requirements stated herein, such actions may be credited as compliance with these Sections if Defendants submit a report for EPA's approval no later than 90 days after entry of this Decree or in their first Annual Report submitted pursuant to this Section, whichever is later, explaining what early compliance actions were taken and certifying, in compliance with Section XIII (Notices and Submittals) of this Consent Decree, that all such actions were taken in compliance with all the requirements of this Consent Decree. If, after review of this submittal, EPA determines that the actions taken comply with the requirements of this Consent Decree, EPA shall so notify Defendants within 180 days of receipt of Defendants' report.